

ABSTRACT

[0090] A metal-to-metal antifuse is disposed between two metal interconnect layers in an integrated circuit. An insulating layer is disposed above a lower metal interconnect layer. The insulating layer includes a via formed therethrough containing a tungsten plug in electrical contact with the lower metal interconnect layer. An antifuse material layer comprising amorphous carbon is disposed above the upper surface of the tungsten plug. The antifuse material layer is disposed between adhesion-promoting layers. A layer of a barrier metal, consisting of either tantalum or tantalum nitride, is disposed over the antifuse layer to form an upper electrode of the antifuse. An oxide or tungsten hard mask provides high etch selectivity and the possibility to etch barrier metals without affecting the dielectric constant value and mechanical properties of the antifuse.